

1966

ANNUAL NARRATIVE REPORT
BENSON WETLAND MANAGEMENT DISTRICT
BENSON, MINNESOTA
JANUARY - DECEMBER, 1966

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BENSON WETLAND MANAGEMENT DISTRICT
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I. GENERAL

A. Description of the Area

The Benson District Wetland Management Office located in Benson, Minnesota serves an area of eleven counties of West-Central and South-Central Minnesota. Included in the District are the counties of Big Stone, Cottonwood, Jackson, Kandiyohi, Lac qui Parle, Pope, Stearns, Stevens, Swift, Traverse and Yellow Medicine. The map on the following page reflects the extent and location of the Wetland District in relation to the State.

The area lies on the eastern margin of both the Great Plains and the duck factory region of the midwest. The topography varies greatly from rolling grassland to flat agricultural-type land. The transition zone between plains and forest is locally evident.

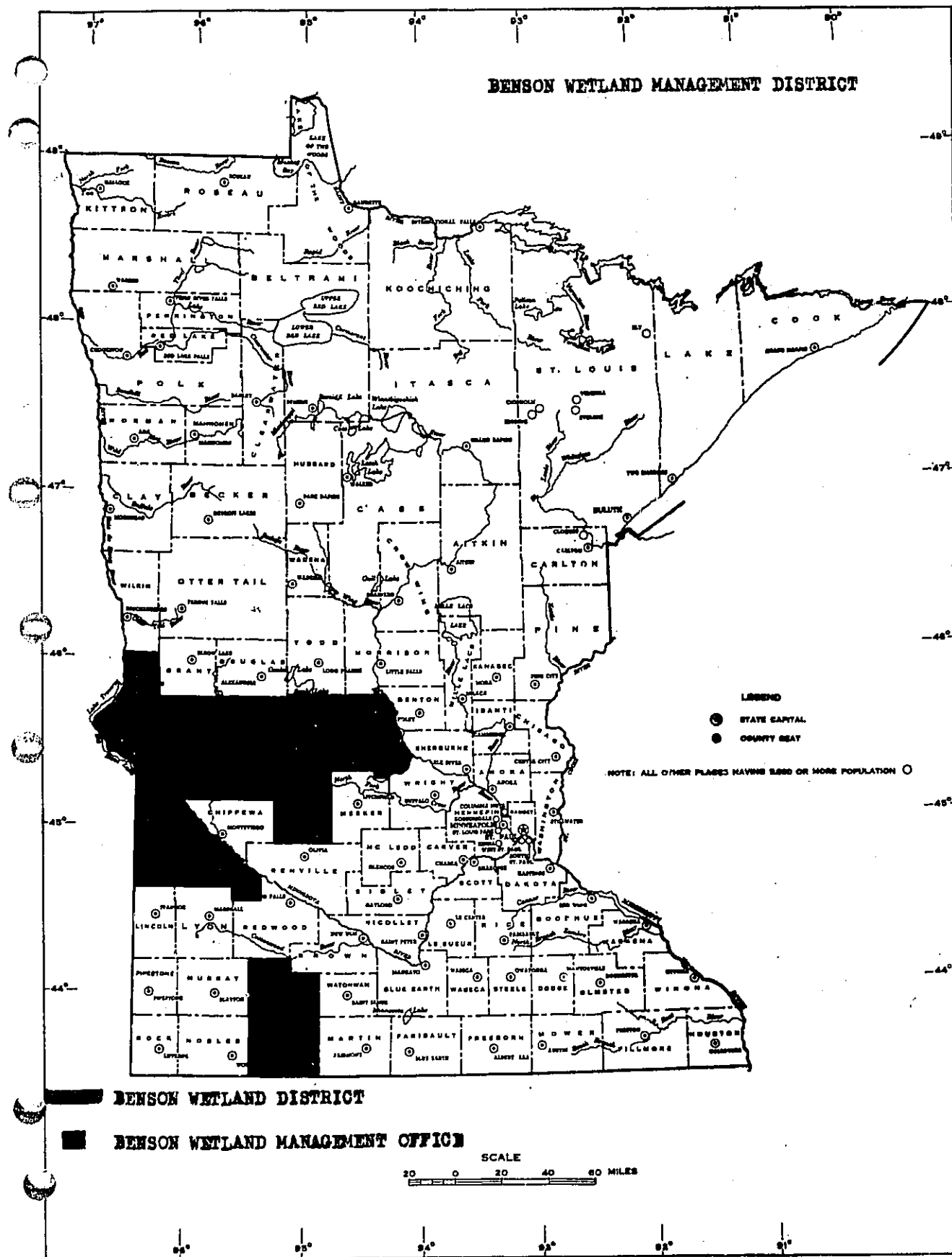
B. Status of the Acquisition Program

1. Fee Title Program

The Benson Area Acquisition Office goal is to have 364 management units in the eleven-county district totaling 59,037.00 acres in fee title by January, 1971. The forthcoming Congressional bill asking for a seven-year extension of the acquisition program is essential to reach their goal. Should this effort to extend the program fail, then acquisition must be completed by June 30, 1968. This would make it impossible to reach the previously-stated goal. Theoretically, this goal of 59,037 acres should include a minimum of 40% wetlands.

Excepting the fact that the overall acquisition program is moving much slower than originally anticipated, progress for calendar year 1966 was considered normal. There was a slight decrease in acquisition during November and December, but considering man-hours expended, this was not unusual.

From all indications purchasing will decrease as the program approaches completion. This is primarily due to the fact that remaining wetlands under consideration are the more difficult ones to acquire. This decline in



MINNESOTA

3.

purchase transactions is evident since 800 wetland acres per month were acquired in 1965, while only 500 acres per month were acquired in 1966. Also indicative of this decline is the fact that 59 new management units were created during 1965, while 46 new units evolved during 1966.

Table I, "Acquisition Status" which follows reflects the status of the acquisition program through December 31, 1966. The breaking-point for Table I will be the option date of the Agreement.

2. Easement Program

The easement program has been progressing much slower than the fee title program during 1966. There are indications that as the fee title program continues to decline the easement program will increase in activity. It is anticipated that once the fee title program goals are reached in 1971, the remainder of the extension period will be focused on the easement program. At this time easement goals are not reliable enough to make a correlation with actual acquired acres presented in Table I.

TABLE I ACQUISITION STATUS, DECEMBER - 1966

COUNTY	FEE TITLE		EASEMENTS		
	No. Mgmt. Units	Acres	No. Easements	Wetland Acres	Total Acres
Big Stone	37	5,418.47	95	3,546.00	13,233.43
Cottonwood	3	295.45	No easements being taken		
Jackson	8	947.57	No easements being taken		
Kandiyohi	28	4,879.96	48	1,839.00	6,521.13
Lac qui Parle	8	790.30	2	141.00	240.00
Pope	30	4,554.58	98	4,619.00	17,870.82
Stearns	7	1,582.09	4	257.00	876.32
Stevens	28	3,275.33	9	209.00	756.25
Swift	18	2,933.53	8	267.00	1,091.52
Traverse	7	1,589.62	18	937.00	2,961.38
Yellow Medicine	1	30.00	---	---	---
TOTALS	175	26,296.90	282	11,815.00	43,550.85

C. Weather Conditions

TABLE 2 1966 WEATHER DATA

Precipitation:	Willmar	Morris	Benson	Canby	Windom	Average
January	: .91"	: .58"	: .78"	: .30"	: .51"	: .616"
February	: 1.55	: .78	: 1.27	: 1.41	: 1.25	: 1.252
March	: .82	: 1.34	: 1.17	: 2.33	: 2.15	: 1.562
April	: 2.65	: 2.44	: 2.44	: 2.23	: 1.61	: 2.274
May	: 2.68	: 1.09	: 1.68	: 2.28	: 1.26	: 1.798
June	: 4.67	: 2.86	: 3.69	: 1.47	: 5.36	: 3.610
July	: 2.66	: 2.28	: 3.76	: 2.63	: 2.42	: 2.350
August	: 7.32	: 7.43	: 5.29	: 5.34	: 3.69	: 5.814
September	: 1.14	: .47	: 1.39	: 3.66	: 5.97	: 2.526
October	: 2.09	: 2.14	: 1.74	: 1.20	: 2.23	: 1.880
November	: .52	: .77	: .71	: .36	: .34	: .54
December	: 1.01	: .46	: .68	: .61	: 1.08	: .768

ANNUAL TOTAL :28.02" :22.64" : 24.60" :23.82" :27.87" : 25.39"

Temperature	Willmar	Morris	Benson	Canby	Windom
	Max : Min	Max : Min	Max : Min	Max : Min	Max : Min
January	: 38 : -28	: 34 : -29	: 39 : -28	: 45 : -25	: 43 : -27
February	: 45 : -17	: 40 : -19	: 47 : -21	: 48 : -26	: 50 : -14
March	: 62 : -3	: 60 : -11	: 62 : -8	: 70 : -13	: 73 : 0
April	: 66 : 22	: 68 : 16	: 68 : 17	: 75 : 19	: 73 : 23
May	: 89 : 25	: 89 : 24	: 91 : 27	: 93 : 22	: 92 : 26
June	: 93 : 44	: 90 : 41	: 96 : 43	: 98 : 42	: 93 : 45
July	: 96 : 54	: 102 : 53	: 103 : 52	: 108 : 53	: 101 : 52
August	: 88 : 47	: 91 : 46	: 89 : 47	: 97 : 42	: 90 : 45
September	: 84 : 38	: 87 : 36	: 86 : 35	: 90 : 33	: 84 : 36
October	: 83 : 24	: 82 : 22	: 85 : 19	: 85 : 22	: 83 : 22
November	: 52 : -7	: 48 : -8	: 51 : -12	: 52 : -5	: 53 : -5
December	: 40 : -12	: 43 : -14	: 42 : -12	: 47 : -15	: 45 : -8

EXTREMES : 96 : -28 : 102 : -29 : 103 : -28 : 108 : -26 : 101 : -27

In general the last portion of 1965-1966 winter was typical, but of long duration. January was a very typical month with light snow, average precipitation, and a variety of temperatures ranging from below zero to above freezing. With above average precipitation and several days of unusually high temperatures in February, there was a sigh of relief from some people in the area in hopes that we were in store for an early spring. This was not the case as on March 3rd and 4th the entire district was engulfed in one of the most intense blizzards of the year. The remainder of March and all of April

April carried seasonably cold temperatures and periods of heavy snowfall giving an above-average amount of moisture. Still the frosted ground remained. It was not until latter May that spring arrived, accompanied with below-average rainfall.

Spring was relatively short lived before moderating into the summer season. Both May and June were months of below-average amounts of rainfall.

The summer season brought July with a period of temperatures throughout the district soaring above 100 degrees. The Canby, Minnesota area experienced a high temperature of 108 degrees. Although July had below normal amounts of precipitation, August made up for it with very heavy amounts of rainfall accompanying a series of storms spawning some hail and tornadoes within the district. Farmers state that they had one of the best growing seasons in years, undoubtedly due to high precipitation occurring during August.

The fall season was rather pleasant with prolonged warm weather through most of September, a typical Indian summer. Both September and October brought above average amounts of precipitation.

The approach of winter was again very typical. Freeze-up occurred during early November and was followed by periods of thawing, snow, and cold-waves. Both November and December had slightly below normal amounts of precipitation.

D. History of Past Use

The region is primarily agricultural with small grains and corn as prevailing crops. Nearly all land regardless of capability has been tilled at one time. All types of erosion are evident as a result.

The terrific demand for farmland in the 1940's and 1950's caused many thousands of wetlands to be destroyed in the name of conservation. Greater emphasis on true conservation in recent years has resulted in at least a beginning to better land use.

The wetland management units are beginning to contribute to the area economy. Although the degree of economic relation may be small, the grazing units and small farmland tracts will aid the surrounding communities.

E. Habitat Conditions

1. Water

Although the amount of rainfall varied considerably over the district, the over-all average was slightly above normal. Water conditions through most of the district were considered excellent as the year 1966 started. With the combination of existing water conditions plus moderate to heavy amounts of precipitation during February, March, and April the majority of Type I marshes were holding an abundance of water. This abundance of water filling the small Type I peripheral marshes furnished the needed territorial space for waterfowl to carry on their courtship activities.

Although spring was late in arriving, when it did come the excellent supply of water rapidly stimulated vegetative growth. Many areas farmed in past years could not be worked this year due to excessive moisture.

Due to a series of storms during August, heavy amounts of precipitation were received over most of the district. This lent itself to creating adequate amounts of water in Type III, IV, and V marshes at the time when young ducklings were in need of quality water. In many densely vegetated marshes, the increased waterlevels created readily accessible escape cover.

Although water conditions were considered excellent over the majority of the district by fall 1966, a near-drought condition had evolved in the Cottonwood-Jackson County portion of our District. Several Type III marshes in this locality were entirely dry. This was the result of below normal rainfall during 1966 as well as an insufficient supply of water going into 1966.

2. Food and Cover

An abundance of moisture and a normal growing season over the majority of the district stimulated plant growth which flourished throughout the growing season.

Drought conditions in the Cottonwood-Jackson County area tended to reduce the quality and to a lesser extent, the quantity of food and cover. Water levels were extremely low by mid-summer, and by late summer and early fall, many wetlands were dry. Aquatic vegetation began showing the effects of insufficient moisture by mid-summer. Both cattail and bulrush were turning brown.

Grassland nesting cover will be continuously improved on our management units as we progress with the seed-down program. Each unit will be seeded down to clover, alfalfa, mixed grasses, etc., as we acquire full possession.

However, some areas did not require seeding-down during 1966 because they presently exhibit a good cover of native grass. With the exception of portions of the Cottonwood-Jackson area, most grasslands were in excellent condition as the nesting season approached. Wildlife escape cover was adequate on most of our management units.

Farmers throughout the district stated that 1966 was one of their best years for crop yields. But due to moisture problems, harvest of soy beans was late. In turn this caused a delay in the harvest of corn which resulted in many cornfields remaining unpicked until early December, and a few fields were not picked at all. This created a generous fall and winter supply of corn for wildlife.

It appears that snow cover did not seriously affect food availability for wildlife during 1966.

The adequate supply of moisture throughout most of the district, with the exception of the Cottonwood-Jackson County area, generated a rank stand of aquatics on most of our marshes. While the emergent aquatics on some marshes were beneficial to wildlife for food and cover, many wetlands were choked with vegetation, leaving little to be desired by waterfowl. Possible remedies to this problem would be pothole blasting, lateral ditching and clipping of vegetation over the ice surface. Ten potholes were experimentally blasted on two units. Although their immediate effect in opening up the choked wetlands was satisfactory, periodic observations over several years will be necessary to analyse the full extent of their benefits in our program.

One of our marsh management tools is the muskrat. On many vegetatively choked wetlands the muskrat did an excellent job in opening up the marshes. This was the result of their house construction. Not only did they improve the dispersion of vegetative cover and water, but the numerous muskrat houses newly constructed during the fall of 1966 will furnish excellent nesting and loafing sites for ducks in the spring.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl - (Anseriformes)

Traces of both ducks and geese were present by March 13th. Two wood ducks were observed at Granite Falls, Minnesota on March 13th. Benson AAO biologists reported a few

mallards on March 11th and Canada geese on March 13th. The spring migration was well in motion by March 25th with most common species present in the district.

Water conditions were excellent for a relatively large breeding population. There was an abundance of blue-winged teal, scaup, and ringneck in the breeding population with many scattered mallards, red-heads, gadwalls and pintails present. It is very evident that this portion of the migration flyway provides an important breeding grounds for nesting both locally and in other areas perhaps far removed. Techniques are now being established to measure the breeding population but have not been put in use. Many problems are involved since we deal in both easement and purchase marshlands and our district is very large. Block counts are going to be used both for breeding and production surveys. Sample areas are being chosen which will represent the general area involved.

Production was recognized by ourselves and AAO biologists as being above normal in the Benson working area. Water conditions were generally excellent except for our two isolated counties in south-central Minnesota where drought persisted. Broods of blue-wing teal and mallards were common throughout July with a scattering of gadwall. Our block-count system of surveying waterfowl production is expected to be in full swing in 1967.

Fall migration was inconspicuous as it continued through October and early November. Freeze-up occurred abruptly in early November; however, there were only a few scattered birds left at that time.

2. Water and marsh birds - (Gaviiformes, Ciconiiformes and Gruiformes)

Pied-billed grebes are common nesters and users of the management units. Loons have occasionally been observed in the area but not on any units. The great-blue heron, green heron, black-crowned night heron, American egret, and American bittern are all very common to the management units. One colony of great-blue herons is known to nest on the Lovell Lake Unit in Stearns County. The rookery involves roughly 25 nests and is located on the south-eastern shore of the main marsh.

Coot are extremely common in the district both on management units and on other marshes. Coot production exceeds that of ducks as a whole. There is a question whether the coots aggressive territorial behavior in nesting seriously conflicts with waterfowls' search for

nesting sites. Coot nests are easily found on most Type IV marshes and broods are very common by mid-July. A census technique has not been specifically established for coot or rails, but the waterfowl brood count through beat-outs should provide some reliable data on this. The secretive rail is occasionally observed and presumed to be abundant.

3. Shore birds, gulls and terns - (Charadriiformes)

Wilson's snipe were present in large numbers throughout the district during spring and fall migrations. They are common during the summer on most management units. Time has not been available to study the many other species found in the area.

The herring gull and ring-billed gull are common throughout the warm months on both large and small water bodies. Black terns are known to be common nesters on the management units and other terns frequent the areas during migration.

4. Doves - (Columbiformes)

Mourning doves are easily observed throughout the district. They commonly nest in scattered groves on the units as well as on ground sites. They usually are among the first to migrate although one was observed on the Christmas bird count north of Willmar on December 26th.

B. Upland Game Birds-(Galliformes)

The Wetland District includes some of the best pheasant range in Minnesota. Pheasants are common on most of the wetland units. Many of the units provide winter cover where there would be a void if the unit would have been destroyed by drainage or burning. Nesting use is also made of the wetlands in addition to feeding and resting use.

C. Other Birds (Falconiformes, Strigiformes, Passeriformes) and (Pelecaniformes)

There have been no eagle observations on any of our units nor within the district. Hawks of several different species are common with the marsh hawk predominating. Although snowy owls were not reported for 1966, two were observed on the Dismal Swamp Unit on December 30, 1965. Great-horned owls are quite common area-wide.

Double-crested cormorants have been observed occasionally on some of the large Type V units. Pelicans have been noted

in flight during migration.

The perching-type birds are also being benefited by the Wetlands Program. Many old groves, building sites and brushy growths are being maintained for bird life of all kinds. Specific information is not available on their overall use of the production units, but they are surely finding the undisturbed cover to their liking.

The West Central Bird Club conducted the Christmas Bird Count on December 26th. The count area was north of Willmar where several management units are involved. A total of 764 birds were counted with over half being house sparrows. Twenty-three species were recorded in all.

D. Big Game Animals

White-tailed deer are common residents on many units throughout the district. The eastern third, however, supports the greatest population, presumably because of it being in the prairie-timber transition zone. Some ideal habitat exists there with the relationship of agriculture, timber-brush and idle land.

E. Fur Animals, Predators, Rodents and other Mammals

The Small Wetlands Preservation Program continues to benefit muskrat populations. Muskrats are extremely abundant in the western half of the district and abundant in the east. The southern two counties experienced a drought and furbearers were adversely affected.

Beaver are not known to inhabit any fee-title areas at this time. Definite checks have not been made to determine populations or presence of other furbearers.

Red fox, striped skunk, spotted skunk, raccoon and badger are common species in the district. Cottontail rabbit and fox squirrel are also common. Thirteen-lined ground squirrel, franklin ground squirrel, woodchuck and pocket gopher are abundant in the district.

F. Rare, Endangered and Status Undetermined Species

There are no threatened species known to exist within the district.

G. Fish

Marshlands are rarely of any value to fish populations. Several areas now have the problem of carp infestation each

spring, but winter freeze-out is inevitable in the shallow purchase areas. One unit, the Thompson complex in Big Stone County may possibly have some deep areas that will over winter fish. A few other purchase sites provide access to lakes not in our ownership.

III. W.P.A. DEVELOPMENT AND MAINTENANCE

A. Physical Development

TABLE 3 MAJOR PHYSICAL DEVELOPMENT

COUNTY	TRACT	DEVELOPMENT & NO.	LABOR	COST
Big Stone	Rothi (23)	Fencing*, 215 rods	F.A.	14 m. d.
Big Stone	Hanson (16)	Fencing*, 136 rods	F.A.	8 m. d.
Big Stone	Curran (81)	Fencing, 92 rods	F.A.	5 m. d.
Big Stone	Holmblad (39)	Fencing, 152 rods	F.A.	6 m. d.**
Big Stone	Haugen (93)	Fencing, 140 rods	F.A.	12½ m.d.
Big Stone	Barry Lake Unit	Ditch Plugs, 3	C	\$60**
Big Stone	Hillman (18)	Ditch Plugs, 1	C	\$25**
Big Stone	Henry (95)	Ditch Plugs, 1	C	\$25**
Jackson	Even Unit	Fencing*, 340 rods	F.A.	22 m.d.
Kandiyohi	Sweep Unit	Fencing*, 260 rods	F.A.	31 m.d.
Kandiyohi	Randall (33)	Fencing*, 120 rods	F.A.	10 m.d.
Kandiyohi	Weber (30)	Ditch Plugs, 1	F.A.	3½ m.d.
Kandiyohi	Randall (33)	Ditch Plugs, 10	C	\$80
Kandiyohi	Freese (25)	Ditch Plugs, 1	C	\$110
Pope	Staack (21,a)	Fencing*, 250 rods	F.A.	43½ m.d.
Pope	Evjen (25)	Fencing*, 140 rods	F.A.	25 m.d.
Pope	Nelson-Gjerd Unit	Fencing*, 475 rods	F.A.	15 m.d.
Pope	Brosh (36,a)	Ditch Plugs, 5	C	\$84
Pope	Evjen (25)	Ditch Plugs, *4	C	\$168
Pope	Nelson (19)	Ditch Plugs, *1	C	\$14
Pope	Staack (21,a)	Ditch Plugs, *4	C	\$80
Swift	Rice Unit	Pothole Blasting, 4	C	\$80
Swift	Welsh (16)	Pothole Blasting, 6	C	\$120
Swift	Qualle (46)	Fencing, 58 rods	F.A.	4½ m.d.
Swift	Wehrer (47)	Fencing, *56 rods	F.A.	4 m.d.**
Swift	Rice Unit	Fencing, * 420 rods	F.A.	22 m.d.**
Swift	Canfield (27)	Fencing, *300 rods	F.A.	17 m.d.
Traverse	Geyer	Ditch Plugs, 8	C	\$254

* - Includes removal of old fence
 ** - Calendar Year 1965

F.A. - Force Account
 C - Contract
 m.d. - Man Days

12.

Major development completed in calendar year 1965 is included in the above Table because a narrative report was not prepared for that year and the projects should be recorded. The main problem concerned with fencing seems to be the removal of old fence lines. There are many miles of rusty run-down junk fences that must be removed. This is the main reason why contract fencing would be difficult. For every mile of new fence that is constructed, there is usually a mile and a half of old fence to remove.

A total of 30 miles of boundary posting was completed for 1966. The Benson District had 89 units open to public hunting in the fall of 1966.



Development, pothole blasing, Welsh tract (16), Swift Co. by Hubert 9/66



Development, boundary fencing, Nelson and Motzko on
Haugen Unit, Big Stone County, by Hubert 8/31/66



Development, leveling abandoned building site on
Geyer Unit, Traverse County, by Hubert 10/19/65

B. Plantings including Soil and Moisture Activity

1. Aquatics and marsh plants

A mixture of oats, reed canary, grass and sweet clover was hand seeded on all thirty nine ditch plugs. A fast cover was established to retard erosion.

All ditch plugs having spillways were checked. Reshaping was completed by hand and serious erosion problems were solved by rip-rapping with rocks. //

2. Grasslands

Excess cropland is continually being seeded to permanent cover. Relatively small amounts of cropland are acquired in individual purchase cases, but aggregately they amount to thousands of acres. Approximately 3,000 acres are in need of seed-down in 1967. Soil and moisture funds provide some seed and cooperators supply the bulk of the seed. All acreage determined to be excess has been seeded at this point. Varying mixtures have been used to fit the growing conditions of the locality. The species include big bluestem, Canada wild-rye, switchgrass, green needlegrass, alfalfa, sweet clover, timothy, crested wheatgrass and western wheatgrass. A summary of seeding activities is included in NR-8, Cultivated Crops.

C. Cultivated Crops

A few management units lend themselves to the growing of upland game food. Nine units have plots established on a three-year rotation of corn, small grain-alfalfa and alfalfa. Each plot amounts to nine acres allowing simple 1/3-2/3 sharing. Each year our share includes three acres of corn left standing and nine acres of alfalfa to be plowed down in late summer. The operators share is six acres of corn and all the small grain each year. Pheasants have made very good use during the winter of the corn plots and the alfalfa is undisturbed for nesting.

Sharing arrangements for cropland retirement and seed-down have varied from 95% to 100% operator's share. With a large acreage involved, it is impossible to purchase enough seed to supply it for all tracts. Consequently, the operators have been encouraged to provide additional grass and legume seed in turn for a larger share of the nurse crop. Approval has been received from the Regional Office to grant full share of the nurse crop when the operator provides additional seed.

D. Collection and Receipts

1. Specimens

One white-tailed deer specimen was examined and two fetuses were collected and preserved for display purposes. The doe was a road-killed animal picked up by the local State warden. The collection was made by Manager Hubert.

2. Building Disposal

Surplus real property was disposed of through bid invitations. Five separate surveys were made with subsequent sales. Included were nine houses, seven barns, two silos and twelve miscellaneous out-buildings. Revenue received amounted to \$3,971.01. Most buildings sell for under \$100 depending on their movability. One quonset barn in nice shape sold for over \$1,500. Unfortunately this revenue is not available for needed development in the Wetlands Program, but is deposited in the general treasury of the United States.

E. Control of Vegetation

Control activities included serious problem areas only because of the extensive number of tracts under management. A total of ten management units had noxious weed problems, mostly Canada thistle and were controlled by mowing. Purchase orders were issued to neighboring land-owners who perform the control measures. Pesticides were not used during this calendar year in any control activities.

IV. RESOURCE MANAGEMENT

A. Grazing

Local interest in grazing the production areas has been high. The relationship of grazing to waterfowl nesting is explained to each person inquiring about renting grazing privileges. In many cases extreme over-grazing of the land prior to the Government's purchase has been the rule. This makes it necessary to defer grazing until the pasture land is rehabilitated. Grazing will be allowed where it will benefit wildlife and size and condition of the unit warrants such use. Fencing, cropland grass seeding and retired pastures are all factors which will have a major effect on the grazing program.

Animal unit months (AUM) is the current system being used in renting pastureland. Very moderate grazing from the standpoint of benefiting wildlife habitat has been allowed

on each capable unit. Grazing privileges have been based on a minimum rate of eight acres of grass per head for a maximum season of five months extending from May 1st to September 30th. This has been determined to be reasonable for good habitat management. Grazing of stock other than cattle will not be allowed except in rare circumstances.

A survey of the entire area indicated that a price of \$2.00 per AUM would be suitable for each unit that becomes capable of use. This figure and the acreage per AUM may be adjusted later as deemed necessary.

TABLE 4 GRAZING PROGRAM, 1966

Management Unit	Acreage Grazing Habitat	Total AUMS:	Date of Use	Revenue Collected*
Bakalyar (11), Cottonwood Co.:	68	: 40	: 5/1-9/30/66:	\$ 80.00
Evjen (25), Pope Co.	: 60	: 35	: 5/1-9/30/66:	70.00
Ewen (13), Jackson Co.	: 115	: 35	: 5/1-7/15/66:	70.00
Randall (33), Kandiyohi Co.:	280	: 160	: 5/1-9/30/66:	320.00
Staack (21a), Pope Co.	: 52	: 20	: 5/1-9/30/66:	40.00
Stewart (52), Pope Co.	: 58	: 28	: 6/1-9/30/66:	56.00
Welsh (16, 18, & 19) Swift Co:	171	: 110	: 5/1-9/30/66:	220.00
TOTAL	: 804	: 428	:	: \$856.00

* - Total @ \$2/AUM

During 1966, grazing privileges were granted on seven of our management units. Permittees were selected in accordance with the Refuge Manual. Table 4 "Grazing Program, 1966" above reflects the extent of grazing on our WPA's during 1966. Note in this table that seven grazing permits were issued covering 804 acres of grazing habitat which drew \$856 in annual receipts. It is expected that our grazing program will gradually continue to expand as more management units are fenced and pastures are rehabilitated.

The seven management units on which grazing permits were in effect in 1966 were inspected during September, 1966 by airplane in order to make animal unit counts. A follow-up ground reconnaissance was made on questionable cases of violation. No violations were found during these checks.

B. Haying

We have not initiated any sort of haying program on our management units. Haying in general will not be allowed on the waterfowl production areas. The destruction of habitat and setting of precedences are the main factors against it. When possible, native hay should be included in grazing units and tame hay should be retired to allow native grass invasion.

In the future, haying may be necessary in a few instances where a monotype must be opened up or other unusual circumstances exist. These cases will be rare and each will need to be handled individually. Rates of charge will be established according to local custom and seasonal influence. When haying practices are permitted, they will be restricted to a non-nesting season.

C. Fur Harvest

The majority of production areas as managed for waterfowl provide excellent habitat for muskrats. Other furbearers are involved, but to a very small degree. Habitat management that improves and/or maintains furbearer populations when consistent with the waterfowl management objectives is carried out when possible.

Once full possession is acquired of lands and they are posted with our sign "Waterfowl Production Area-Open To Public Hunting," trapping is permitted on a free entry basis. No partiality is shown to trappers. It is anticipated that each year trapping territories established on a first-come, first-served basis can be worked out between individual trappers. So far there have not been any problems along this line.

Although there appeared to be an abundance of muskrats on most of our management units during 1966, trapping activities were light and widely scattered over the district. In time and through good public relations, interest in trapping should increase in the years to come. Figures on numbers of trappers and animals trapped during 1966 were not available. Few trappers over a widely-scattered area and insufficient man-hours made it impractical to obtain realistic data.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Wildlife Management Studies

There were no wildlife management studies initiated during

the year 1966. Once the acquisition program nears completion and high priority development activities subside there should be room for some pertinent wildlife management studies.

B. Biological "Tinkering"

Like wildlife management studies, biological tinkering has been intentionally ignored for reasons similar to those given above.

One of the projects initiated during 1966 that could be classified as biological tinkering was pothole blasting. Six potholes on the Welsh (16) tract and four potholes on the Rice (24) tract, both tracts in Swift County, were blasted on September 6th in marshes choked with dense vegetative stands. The primary objective for pothole blasting on our wetlands was to test the effectiveness of this proven-developmental technique for increasing production area on small wetlands choked with dense stands of vegetation. A secondary objective was to establish demonstration areas for future reference and public relations purposes. Although the ultimate general effects of blasting are known from previous investigational studies, it will be interesting to observe these small wetlands periodically over several years to determine their effectiveness and acceptance by waterfowl for nesting activities.

Banding activities were very limited because of workload and manpower problems. The only banding accomplished included six coot and nine mallards, both pen-reared. Plans are being made for spring and early summer banding.

VI. EASEMENT ADMINISTRATION

Due to the high volume of tracts under easement our primary means of inspection is by visual examination from airplanes. Ground checks are made only when considered necessary in the case of violations, apparent violations, or observation of questionable activities that cannot be fully analyzed from air examinations.

During 1966, aerial inspections of easement tracts were accomplished over five days flying time occurring on November 25th and 29th, and December 5th, 7th and 8th. Due to limited manhours available, easement inspections were initiated later in the season than we had hoped. Light snowfall (2-3 inches) occurred over most of the district during the inspection period. It was interesting to discover that a maximum 2 to 3 inches of snow did not handicap aerial inspections. Disturbances of soil and vegetation were quite apparent.

A total of 225 easement tracts were checked by air this year as compared to 160 easement tracts checked in 1965. Flying time in a rented single-engine, high-winged aircraft was 18½ hours to check the 225 easements. The rate for rental of this type aircraft was \$25 per hour. Our total expense charge for rental of pilot and plane for the 1966 inspections was \$462.30.

Table 5 which follows presents in tabular form information concerning the nine easement violations detected during the 1966 inspection. Possible easement violations detected by air were checked out on the ground. Then a check of courthouse records for current ownerships of lands where actual violations existed was made prior to contacting the owner. In cases of draining and filling the owner and/or tenant was directed to correct the damage. They were also reminded of the terms of the easement agreement and of their responsibility to protect the land in question. Personal contacts were documented by a certified letter to the owners and/or tenants, regional office and station file. In the spring each 1966 violation will be inspected for correction of damage.

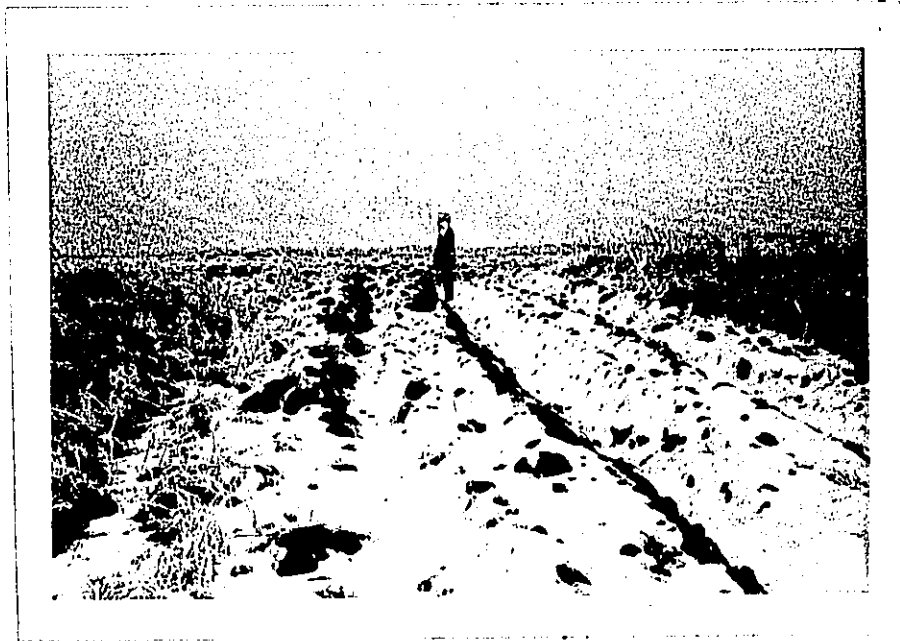
TABLE 5 EASEMENT VIOLATIONS-1966

Easement Name & Number	County	Aerial Check	Contact Owner	Violation
A. Schneider (21X)	:Kandiyohi:		:11/2/66	:Draining & Fill-
				:ing (soil)
Hafstad (141X)	:Big Stone:	11/29/66	:12/14/66	:Filling (trees)
*Gilbert Olson				
Clarence M. Sherod	:Big Stone:	11/29/66	:12/14/66	:Drainage (plow
				:furrow), burning
				:& filling (trees)
*Clarence A. Johnson:				
Castor (53X)	:Big Stone:	11/29/66	:12/14/66	:Drainage (plow
				:furrow)
*Jeroy Hauko				
Burns (44X)	:Pope	:12/7/66	: 1/4/67	:Burning
J. H. Kleindl (32X)	:Big Stone:	11/29/66	: 1/4/67	:Burning
W. Davids (16X)	:Pope	:12/8/66	: 1/11/67	:Burning
A. Peterson (84X)	:Kandiyohi:	12/5/66	: 1/11/67	:Draining
M. Chan (20X)	:Pope	:12/7/66	: 1/11/67	:Burning
* - New Owner				
TOTAL VIOLATIONS:				9
Draining				4
Burning				5
Filling				3

Public acceptance of our easement program is low because lands are perpetually encumbered. In the landowner's opinion, this makes it difficult to sell their land at fair market value. Some landowners on whose lands easements now exist are expressing dissatisfaction with the easement program.

Problems which our management staff have encountered so far have been few and minor although they do arouse some question. The following are a few of the problems:

1. Some owners of lands covered by waterfowl easements deny having knowledge of the extent of easements. This commonly is the case when ownership has changed. There is the possibility that some vendors are taking the wrong interpretation of statements by realtors concerning the terms of agreements also.
2. The decision as to whether a plow furrow ditch constitutes a violation or not has aroused some concern.
3. A few landowners have demonstrated a reluctance to assume the responsibility to protect lands encumbered by a waterfowl easement.



Easement Violation, Ditching. Sherod tract (71X)
by Womble 12/14/66



Easement violation, combination burning and filling,
Sherod tract (71X), by Womble 12/14/66



Easement Violation, burning, Davids tract (16X)
by Womble 12/13/66

VII. PUBLIC RELATIONS

A. Recreational Uses

Public use increases each year. Not only are additional lands opened to free use, but the program is gaining wider publicity through news media and public discussion. Several units are being used by college and high school classes as study areas. Limited use is being made of areas for picnics, camping and general recreation. Sightseeing is gaining in popularity especially during spring migration. Spot checks of purchase areas are made throughout the year on a random basis.

The Rice management unit in eastern Swift County has been established as a demonstration area. Development is continuing with ditch plugging planned for 1967. The area has been fenced, seeded to permanent cover, posted and four potholes were blasted on the marsh perimeter. A 6' x 4' information sign is ready to be erected.



The Wetlands Program aids the District economy in many ways.
by Hubert 9/19/66

B. Refuge Visitors

TABLE 6 WETLAND OFFICE VISITORS		
Non-routine Visitors	Date	Purpose
Bill Maloney & friend, Morris	7/29	Excess buildings
Walter Johnson	7/30	Cropping
Cliff Benson, Swift Co. Weed Inspector	8/3	Weed inspection
Renter of John Thien	8/8	Cropping
Mike Fredell, Ortonville	8/12	Game management
Mr. & Mrs. Bucholz	8/15	Cropping
Galen Ward & Clarence Freed	8/15	Cropping
Cliff Benson, Swift Co. Weed Inspector	8/16	Weed inspection
Joe Smith, Donnelly	8/22	Cropping
Herman Theessen, Raymond	8/22	Cropping
Harold Benson (R.O., Realty)	8/22	Wetland management
Bert Bounds, Wetlands Coordinator	8/22	Wetland management
Floyd Miller, Alberta	8/30	Cropping
John W. Edwards, Morris	9/8	Cropping
Floyd W. Manthei	9/14	Excess buildings
Leonard Peterson	9/14	Excess buildings
Lawrence Holm	9/20	Cropping
Adolph Staack, Starbuck	9/20	Grazing
Bruce Loose, Appleton	9/21	Trapping
Peter Janssen	9/27	
Harry Christenson, Appleton	9/30	Trapping
Mr. Dokkebokken, Benson	10/3	Cropping
Floyd Guyott	10/4	Cropping
Harris Gjerdingen, Starbuck	10/7	Grazing
Paul Moline	10/7	Office rental
Irvin Thone	10/7	Cropping
Paul Wojan (MCD Warden)	10/10	Duck Season
Millard Rice, Murdock	10/10	Grazing
Dennis Loose, Appleton	10/14	Cropping
Lloyd Miller, Alberta	10/18	Cropping
Robert Erenberg	10/18	Post hole rental
Kermit Overlie	10/24	Excess buildings
Warren Braaten, Glenwood	10/31	Bees permit
Don Larsen	10/31	Bees permit
Erwin Serr & Mother, Sunburg	11/7	Excess buildings
Mr. Kill, Donnelly	11/13	ASCS crop allotment
Joe Smith, Donnelly	11/13	ASCS crop allotment
Clifford Freese, Sunburg	11/18	Excess buildings
Mr. Gronseth	11/21	Cropping
OSA representative from Redwood Falls	11/22	Excess property
Frank Martin (R.O. Refuges)	12/2	Visit
Eugene Struck, Donnelly	12/7	Cropping
Ed Weiland, MCD Mgr., Willmar	12/9	Cooperation
Richard Erickson	12/9	Excess buildings
Wayne Klucas, ASCS	12/16	ASCS crop allotments
County Commissioner, Rep. ASCS & ASCS Mgr., Stevens County	12/16	ASCS crop allotments

An active list of visitors was not kept before the appointment of a clerk-typist. In addition to the above table, routine visitors to the Wetland Management Office included Area Acquisition Office personnel, Paul Pederson, office building owner, and Larry Goggin, Pure Oil Service. It is impossible and impractical to list the many visitors to the actual management units.

C. Refuge Participation

TABLE 8 WETLAND PARTICIPATION

Date	Participation	Personnel
1/14	ASCS, Wheaton, Crop Allotments	Hubert
1/23-29	Region III Conference, Minneapolis	Hubert
2/8	ASCS, Benson, Crop Allotments	Hubert
2/8	ASCS, Ortonville, Crop Allotments	Hubert
2/11	Kandiyohi County Commissioners, Florida Slough water problems	Hubert
2/24	ASCS, Wheaton, Crop allotments	Hubert
2/25	ASCS, St. Cloud, Crop Allotments	Hubert
2/28	RDD, Wm. Omeiken, Benson, Boy Scout Projects	Hubert
3/19	Morris Boy Scouts, Plugged ditch on Benson tract	Hubert
3/31-4/1	Wetland Workshop, Jamestown, Management Coord.	Hubert
4/6	ASCS, Windom, Crop Allotments	Hubert
4/7	ASCS, Glenwood, Crop Allotments	Hubert
4/14-15	Wetland Workshop, Jamestown, Wildlife Inventory	Hubert
5/24	Benson Boy Scouts, Field trip Staack unit	Hubert
6/10	ASCS, Clarkfield, Crop Allotments	Hubert
8/5	Stearns Co. Engineer, Road Easements	Hubert & Womble
9/12	Langhei 4H, Pope Co., Program presentation	Hubert
9/20-28	All County Auditors, Benson District, Revenue checks	Hubert & Womble
9/20	Holloway Sportsmans Club, Program presentation	Hubert
9/23	GSA Workshop, Fargo, Communications	Hubert
10/5	Advanced Science Class, Benson High School, Program presentation	Hubert
11/15	So. Dak. State U., Wildlife classes, Brookings, Program presentation	Hubert

News releases were prepared and submitted to District newspapers and radio stations. Included were releases on four separate building sales, Jack Womble's transfer.

opening of W.P.A.'s to hunting, and publicity on Refuge Revenue Sharing.

D. Hunting

Public acceptance of the Wetlands Program seems to have wide support both among sportsmen and those simply interested in general conservation. Hunting use through the first two weekends of the waterfowl season was high. Many cars were observed adjacent to the managed units and a relatively large number of hunters were checked.

A Special Teal Season was not held in Minnesota this year. The hunting use of our wetlands in 1965 was high.

TABLE 8 **BAG CHECK SUMMARY**

Benson Wetland Management District					
Calendar Year 1966					
	::	1965	::	1966	
No. hunters checked	::	32	::	109	
No. ducks checked	::	44	::	136	
Average ducks per day	::	1.37	::	1.24	

Species	::	No.	:	%	::	No.	:	%
Mallard	::	1	:	2	::	45	:	33
Black	::	0	:	-	::	0	:	-
Gadwall	::	8	:	18	::	1	:	trace
Baldpate	::	10	:	23	::	9	:	7
Pintail	::	0	:	-	::	7	:	5
G.W.Teal	::	5	:	12	::	18	:	13
B.W.Teal	::	7	:	16	::	22	:	16
Shoveller	::	-	:	-	::	5	:	4
Wood duck	::	0	:	-	::	5	:	4
Redhead	::	11	:	25	::	14	:	10
Ring-neck	::	0	:	-	::	5	:	4
Canvas-back	::	0	:	-	::	0	:	-
Scaup	::	1	:	2	::	5	:	4
Golden-eye	::	0	:	-	::	0	:	-
Buffle-head	::	1	:	2	::	0	:	-
Ruddy	::	0	:	-	::	0	:	-
Mergansers	::	0	:	-	::	0	:	-

The above table summarizes bag checks during the regular waterfowl season. Most determinations were made on fee purchase units, but not exclusively. The 1965 season followed the "September Teal Season" by about a month.

E. Violations

All hunters recorded on the bag check summary were checked for legal compliance. A case involving a youth with an unplugged shotgun was dropped after consultation with State Officer Wojahn. The fire-arm was returned by Manager Womble and a stern warning was given.

Compliance with rules and regulations was generally excellent. Some sign shooting and littering persist, but a very few individuals cannot cover a lot of area.

F. Safety

Formal safety meetings were conducted regularly beginning in August. Included were films, discussions and reviews of printed material in the five meetings held.

This was a one-man station for the first half of the year. Safety bulletins and other printed matter was periodically reviewed throughout that period.

Safety signs are being prepared by our clerk for use in the office and storage sheds. Cisterns and wells on many tracts where buildings once stood present a special hazard. These "water hazards" are blown in where possible, or covered until they can be destroyed. Hard hats are available for all field personnel and are used accordingly. Authorization has been requested for Bureau payment of tetanus immunization for fencing crews.

This station has had no lost-time accidents since its origination. Our record as of the close of 1966 stands at 1784 days.

VIII. OTHER ITEMS

A. Items of Interest

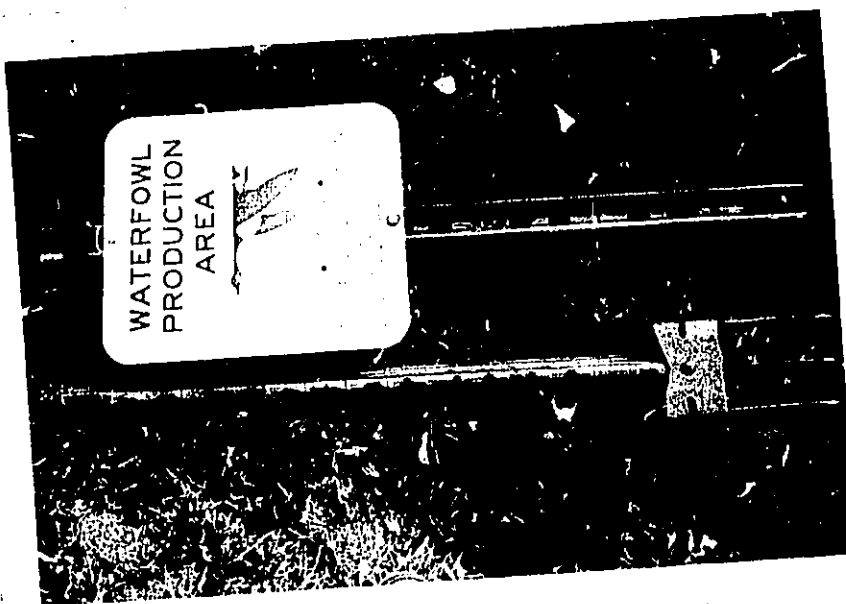
Considerable time was spent obtaining legal documents for the Division of Realty. Certificates of Inspection and Disclaimers were secured in purchase cases not requiring a personal closing.

The Management staff was increased with the establishment of an Assistant Manager's position at GS-9. Mr. Jack C. Womble was promoted to the new position in July. He came from Chassahowitzka NWR in Florida and has met the challenge of absorbing a volume of new management and development concepts.

27.

The appointment of Mrs. Betty L. Dahl as Clerk-typist in July relieved the managers of many clerical tasks. The ease at which she has accepted her responsibilities is gratifying.

An Incentive Award of \$15 was presented to Jim Hubert for his suggestion of using a portable sign and post to include in pictorial records of management and development.



Portable sign as described in text improves identity of photo subjects.
by Hubert 9/22/66

The Project Leader position was reclassified to a GS-11 with the incumbent being promoted thereto.

The Benson District was included in an over-all coverage of master planning the Minnesota Wetlands. Step one has been completed and resulted in a very attractive and worthwhile booklet.

Sections I, IV, V, and VI of the report were completed by Jack C. Womble, and Sections II, III, VII, and VIII were completed by James J. Hubert. Typing credit goes to Mrs. Betty L. Dahl.

B. Signature Page

James J. Hubert
James J. Hubert
Wetland Manager

February 3, 1967

(Sgt.) Frank R. Martin

FEB 8 1967

Date

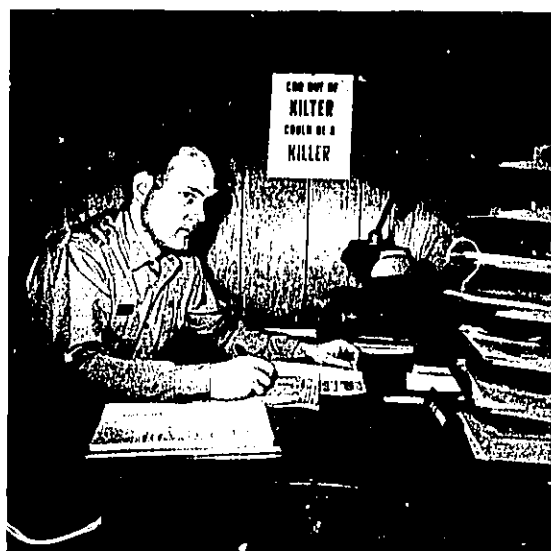
Signature (R. O. Approval)

Asst. Regional Refuge Supv'r.

Title



James J. Hubert, Wetland Manager in charge
by Womble, 1/25/67



Jack C. Womble, Wetland Manager Assistant
by Hubert, 1/25/67



Mrs. Betty L. Dahl, Clerk-typist
by Hubert 1/25/67



Roger H. Nelson and Richard W. Motzko
Laborers by Hubert, 1/25/67



Marsh destruction continues

by Hubert 10/65

3-1758
Form NR-6
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Benson Wetland Management District

County Summary (Eleven Counties)

State Minnesota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
Small Grain/Native Grass	95				8		103		
Small Grain/Legume	1,113				92		1,205		
Land Flat Rotation									
Corn	83				45		128		
Small Grain/alfalfa	36						36		
Alfalfa					27		27		
								Fallow Ag. Land	0

No. of Permittees: Agricultural Operations 59 Haying Operations 0 Grazing Operations 7

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE	
C				1. Cattle	95	428	\$856.00	801	
				2. Other	0				
				1. Total Refuge Acreage Under Cultivation					1,499
Hay - Wild	0			2. Acreage Cultivated as Service Operation					0

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

3-1758
Form NR-6
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Benson Wetland Management District

County Big Stone

State Minnesota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Small Grain/Legume	464				51		515		
<u>Feed Plot Rotations</u>									
Corn	48				29		77		
Small Grain/Alfalfa	27				27		27		
Alfalfa									
								Fallow Ag. Land	0

No. of Permittees: Agricultural Operations 15 Haying Operations 0 Grazing Operations 0

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
0				1. Cattle	0			
				2. Other	0			
				1. Total Refuge Acreage Under Cultivation Big Stone County				
Hay - Wild	0			2. Acreage Cultivated as Service Operation				0

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CULTIVATED CROPS - HAYING - GRAZING

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Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

3-1758
Form NR-6
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Benson Wetland Management District County Cottonwood & Jackson State Minnesota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Small Grain/Legume	202				16		218		
Corn	12				5		17		
								Fallow Ag. Land	0

No. of Permittees: Agricultural Operations 5 Haying Operations 0 Grazing Operations 2

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE	
0				1. Cattle	23	75	\$150.00	188	
				2. Other	0				
				1. Total Refuge Acreage Under Cultivation Cottonwood & Jackson Cos.					235
Hay - Wild				2. Acreage Cultivated as Service Operation					0

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

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Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

State Minnesota

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
0				1. Cattle	32	160	\$320.00	275
				2. Other				
				1. Total Refuge Acreage Under Cultivation				
Hay - Wild				2. Acreage Cultivated as Service Operation				0

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

3-1758
Form NR-6
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Benson Wetland Management District

County Pope

State Minnesota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Small Grain/Native Grass	9				2		11		
Small Grain/Legume	90				4		94		
								Fallow Ag. Land	0

No. of Permittees: Agricultural Operations 7 Haying Operations 0 Grazing Operations 3

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
0				1. Cattle	18	83	\$166.00	146
				2. Other	0			
				1. Total Refuge Acreage Under Cultivation Pope County				105
Hay - Wild				2. Acreage Cultivated as Service Operation				0

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

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Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

3-1758
Form NR-0
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Benson Wetland Management District County Stearns State Minnesota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
			Harvested		Unharvested				
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
Small Grain/Legume	30				1		31		
								Fallow Ag. Land	0

No. of Permittees: Agricultural Operations 3 Haying Operations 0 Grazing Operations 0

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	0			
				2. Other	0			
				1. Total Refuge Acreage Under Cultivation				31
Hay - Wild	0			2. Acreage Cultivated as Service Operation				0

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

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Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

3-1758
Form NR-0
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Beason Wetland Management District

County Stevens

State Minnesota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
Small Grain/Battle Grass	27				3		30		
Small Grain/Legume	71				6		77		
Corn	5				2		7		
								Fallow Ag. Land	0

No. of Permittees: Agricultural Operations 8 Haying Operations 0 Grazing Operations 0

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
0				1. Cattle	0			
				2. Other	0			
				1. Total Refuge Acreage Under Cultivation Stevens County				114
Hay - Wild	0			2. Acreage Cultivated as Service Operation				0

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

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Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

3-1758
Form NR-5
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Benson Wetland Management District

County Swift

State Minnesota

Refuge <u>Benson Wetland Management District</u>			County <u> </u>						
Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
<u>Small Grain/Legume</u>	37				4		41		
<u>Food Plot Rotation</u>					3		9		
<u>Corn</u>	6						9		
<u>Small Grain & Alfalfa</u>	9								
								Fallow Ag. Land	0
							0	Grazing Operations	1

No. of Permittees: Agricultural Operations 5 Haying Operations 0 Grazing Operations 1

No. of Permittees: Agricultural Operations											
Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE			
0				1. Cattle	22	110	\$220.00	190			
				2. Other	0						
				1. Total Refuge Acreage Under Cultivation Swift County							59
				2. Acreage Cultivated as Service Operation							0
Hay - Wild	0										

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

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Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

3-1758
Form NR-0
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Zenon Wetland Management District County Traverse & Yellow Medicine State Minnesota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Small Grain/Legume	135				8		143		
Corn	6				3		9		
								Fallow Ag. Land	0

No. of Permittees: Agricultural Operations 5 Haying Operations 0 Grazing Operations 0

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
0				1. Cattle	0			
				2. Other	0			
				1. Total Refuge Acreage Under Cultivation				
Hay - Wild	0			Traverse & Yellow Medicine Co.				152
				2. Acreage Cultivated as Service Operation				0

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

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